Claims

We claim:

1. A purified or recombinant Lipolysis Stimulated Receptor, wherein said receptor comprises a polypeptide comprising at least 10 to 15 consecutive amino acids of SEQ ID NO: 8.

2. The Lipolysis Stimulated Receptor of claim 1, wherein said polypeptide a) comprises the amino acid sequence of SEQ ID NO:8; or b) consists of the amino acid sequence of SEQ ID NO:8.

3. The purified or recombinant Lipolysis Stimulated Receptor of claim 1, wherein said receptor comprises a biologically active polypeptide comprising an amino acid sequence selected from the group consisting of:

a) an amino acid sequence spanning amino acids 76 to 94 of SEQ ID NO:8;
b) an amino acid sequence spanning amino acids 76 to 160 of SEQ ID NO:8;
c) an amino acid sequence spanning amino acids 76 to 237 of SEQ ID NO:8;
d) an amino acid sequence spanning amino acids 157 to 249 of SEQ ID NO:8;
e) an amino acid sequence spanning amino acids 236 to 530 of SEQ ID NO:8;
f) an amino acid sequence spanning amino acids 236 to 613 of SEQ ID NO:8; and
g) an amino acid sequence spanning amino acids 76 to 613 of SEQ ID NO:8.

4. A recombinant cell expressing the recombinant Lipolysis Stimulated Receptor of claim 1.

5. A recombinant cell expressing the recombinant Lipolysis Stimulated Receptor of claim 3.

6. A method for selecting a compound useful for enhancing lipoprotein uptake in cells comprising the steps:

a) contacting the recombinant cell of claim 4 with a candidate compound in the presence of a lipoprotein; and

b) determining whether the amount of internalized lipoprotein is greater in the presence of said compound than in the absence of said compound, wherein a determination that said amount of internalized lipoprotein is greater in the presence of said compound indicates that said compound is useful for enhancing lipoprotein uptake in cells.

7. The method of claim 6, wherein said candidate compound is a small molecule.

8. A method for selecting a compound useful for enhancing lipoprotein uptake in cells comprising the steps:

a) contacting the recombinant cell of claim 5 with a candidate compound in the presence of a lipoprotein; and

b) determining whether the amount of internalized lipoprotein is greater in the presence of said compound than in the absence of said compound, wherein a determination that said amount of internalized lipoprotein is greater in the presence of said compound indicates that said compound is useful for enhancing lipoprotein uptake in cells.

9. The method of claim 8, wherein said candidate compound is a small molecule.

10. A recombinant polypeptide comprising the amino acid sequence of SEQ ID NO:8.

11. The polypeptide of claim 10, wherein said polypeptide consists of SEQ ID NO:8.

12. An isolated or recombinant biologically active polypeptide comprising an amino acid sequence selected from the group consisting of:

a) an amino acid sequence spanning amino acids 76 to 94 of SEQ ID NO:8;

b) an amino acid sequence spanning amino acids 76 to 160 of SEQ ID NO:8;

c) an amino acid sequence spanning amino acids 76 to 237 of SEQ ID NO:8;

d) an amino acid sequence spanning amino acids 157 to 249 of SEQ ID NO:8;

e) an amino acid sequence spanning amino acids 236 to 530 of SEQ ID NO:8;

f) an amino acid sequence spanning amino acids 236 to 613 of SEQ ID NO: 12; and

g) an amino acid sequence spanning amino acids 76 to 613 of SEQ ID NO:8.

13. A recombinant cell expressing the recombinant polypeptide of claim 10.

14. A recombinant cell expressing the recombinant polypeptide of claim 12.

15. A method for selecting a compound useful for enhancing lipoprotein uptake in cells, comprising the steps of:

a) contacting the recombinant cell of claim 13 with a candidate compound in the presence of a lipoprotein; and

b) determining whether the amount of internalized lipoprotein is greater in the presence of said compound than in the absence of said compound wherein a determination that said amount of internalized lipoprotein is greater in the presence of said compound.

16. The method of claim 15, wherein said candidate compound is a small molecule.

17. A method for selecting a compound useful for enhancing lipoprotein uptake in cells, comprising the steps of:

a) contacting the recombinant cell of claim 14 with a candidate compound in the presence of a lipoprotein; and

b) determining whether the amount of internalized lipoprotein is greater in the presence of said compound than in the absence of said compound wherein a determination that said amount of internalized lipoprotein is greater in the presence of said compound.

18. The method of claim 17, wherein said candidate compound is a small molecule.

19. The polypeptide of claim 10, wherein said polypeptide combines with one or more heterologous polypeptides to form an LSR receptor complex, and wherein said complex comprises an α subunit or an α' subunit, and at least one β subunit.

20. The polypeptide of claim 19, wherein said complex comprises three β subunits.

21. The polypeptide of claim 19, wherein said polypeptide is from a human, and wherein said polypeptide has a molecular weight of 64 kD.

22. The polypeptide of claim 19, wherein said polypeptide is expressed in hepatic cells.

23. The polypeptide of claim 19, wherein said complex has a biological activity selected from the group consisting of lipoprotein binding, lipoprotein internalization, and lipoprotein degradation.

24. The polypeptide of claim 19, wherein said complex has a biological activity that is selected from the group consisting of leptin binding, leptin internalization, and leptin degradation.

25. The polypeptide of claim 12, wherein said polypeptide combines with one or more heterologous polypeptides to form an LSR receptor complex, and wherein said complex comprises an α subunit or an α' subunit, and at least one β subunit.

26. The polypeptide of claim 25, wherein said complex comprises three β subunits.

27. The polypeptide of claim 25, wherein said polypeptide is from a human, and wherein said polypeptide has a molecular weight of 64 kD.

28. The polypeptide of claim 25, wherein said polypeptide is expressed in hepatic cells.

29. The polypeptide of claim 25, wherein said complex has a biological activity selected from the group consisting of lipoprotein binding, lipoprotein internalization, and lipoprotein degradation.

30. The polypeptide of claim 25, wherein said complex has a biological activity that is selected from the group consisting of leptin binding, leptin internalization, and leptin degradation.

31. The polypeptide of claim 12, wherein said polypeptide is recombinant.

32. A composition comprising the polypeptide of claim 10.

33. A composition comprising the polypeptide of claim 12.

34. The composition of claim 32, further comprising a physiologically acceptable carrier.

35. The composition of claim 33, further comprising a physiologically acceptable carrier.

36. A method of making the polypeptide of claim 10 comprising the steps of:
a) obtaining a cell capable of expressing said polypeptide;
b) growing said cells under conditions suitable to produce said polypeptide; and
c) isolating said polypeptide produced by said cell.

37. The method of claim 36, wherein said cell is prokaryotic.

38. The method of claim 36, wherein said cell is eukaryotic.

39. The method of claim 36, wherein said cell is recombinant for polynucleotide encoding said polypeptide.

40. The method of claim 36, further comprising purifying said polypeptide produced by said cell.

41. A method of making the polypeptide of claim 12 comprising the steps of:

a) obtaining a cell capable of expressing said polypeptide;

b) growing said cells under conditions suitable to produce said polypeptide; and

c) isolating said polypeptide produced by said cell.

42. The method of claim 41, wherein said cell is prokaryotic.

43. The method of claim 41, wherein said cell is eukaryotic.

44. The method of claim 41, wherein said cell is recombinant for polynucleotide encoding said polypeptide.

45. The method of claim 41, further comprising purifying said polypeptide produced by said cell.